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PTO/SB/01 (12-97)

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Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (37 CFR 1.63)	Attorney Docket Number	SHI01.NP001
	First Named Inventor	SHI, William Tao
	COMPLETE IF KNOWN	
	Application Number	/
	Filing Date	March 19, 1999
	Group Art Unit	
<input checked="" type="checkbox"/> Declaration Submitted with Initial Filing	OR	<input type="checkbox"/> Declaration Submitted after Initial Filing (surcharge (37 CFR 1.16 (e)) required)
Examiner Name		

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

METHOD AND SYSTEM FOR PRESSURE ESTIMATION USING SUBHARMONIC SIGNALS FROM MICROBUBBLE-BASED ULTRASOUND CONTRAST AGENTS

the specification of which (Title of the Invention)

☒ is attached hereto
OR

☐ was filed on (MM/DD/YYYY) [] as United States Application Number or PCT International

Application Number [] and was amended on (MM/DD/YYYY) [] (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached?	
				YES	NO
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

☐ Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto:

I hereby claim the benefit under 35 U.S.C. 119(e) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date (MM/DD/YYYY)	<input type="checkbox"/> Additional provisional application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.
60/078,823	03/20/98	

[Page 1 of 2]

Burden Hour Statement: This form is estimated to take 0.4 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

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DECLARATION — Utility or Design Patent Application

I hereby claim the benefit under 35 U.S.C. 120 of any United States application(s), or 365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application or PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number (if applicable)

☐ Additional U.S. or PCT international application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

As a named inventor, I hereby appoint the following registered practitioner(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

☐ Customer Number

OR

☒ Registered practitioner(s) name/registration number listed below

Place Customer
Number Bar Code
Label here

Name	Registration Number	Name	Registration Number
Clifford Kent Weber, Esq.	42,215		

☐ Additional registered practitioner(s) named on supplemental Registered Practitioner Information sheet PTO/SB/02C attached hereto.


Direct all correspondence to: ☐ Customer Number or Bar Code Label ☒ Correspondence address below

Name	Clifford Kent Weber, Esq.				
Address	Thomas Jefferson University - Office of University Counsel				
Address	1020 Walnut Street - Suite 620				
City	Philadelphia	State	PA	ZIP	19107-5587
Country	USA	Telephone	(215) 503-0757	Fax	(215) 923-3613

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name of Sole or First Inventor:

☐ A petition has been filed for this unsigned inventor

Given Name (first and middle (if any))		Family Name or Surname					
William Tao		Shi					
Inventor's Signature				Date	3/19/99		
Residence: City	Haddonfield	State	NJ	Country	USA	Citizenship	China
Post Office Address	2-10 Linden Avenue, Apt. C401						
Post Office Address							
City	Haddonfield	State	NJ	ZIP	08033	Country	USA

☐ Additional inventors are being named on the 1 supplemental Additional Inventor(s) sheet(s) PTO/SB/02A attached hereto

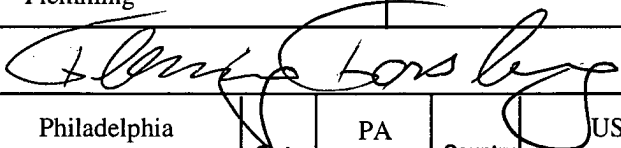

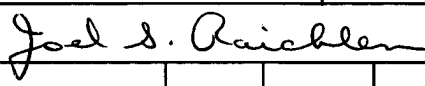
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PTO/SB/02A (3-97)
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DECLARATION

ADDITIONAL INVENTOR(S) Supplemental Sheet Page 1 of 1

Name of Additional Joint Inventor, if any:		<input type="checkbox"/> A petition has been filed for this unsigned inventor					
Given Name (first and middle [if any])				Family Name or Surname			
Flemming				Forsberg			
Inventor's Signature						Date	03-18-99
Residence: City	Philadelphia	State	PA	Country	USA	Citizenship	Denmark
Post Office Address	4139 Kottler Drive						
Post Office Address							
City	Lafayette Hill	State	PA	ZIP	19444	Country	USA
Name of Additional Joint Inventor, if any:		<input type="checkbox"/> A petition has been filed for this unsigned inventor					
Given Name (first and middle [if any])				Family Name or Surname			
Barry B.				Goldberg			
Inventor's Signature						Date	3/19/99
Residence: City	Conshohocken	State	PA	Country	USA	Citizenship	USA
Post Office Address	620 Harts Ridge Road						
Post Office Address							
City	Conshohocken	State	PA	ZIP	19482	Country	USA
Name of Additional Joint Inventor, if any:		<input type="checkbox"/> A petition has been filed for this unsigned inventor					
Given Name (first and middle [if any])				Family Name or Surname			
Joel S.				Raichlen			
Inventor's Signature						Date	3/19/99
Residence: City	Bryn Mawr	State	PA	Country	USA	Citizenship	USA
Post Office Address	505 Hoffman Drive						
Post Office Address							
City	Bryn Mawr	State	PA	ZIP	19010	Country	USA

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**STATEMENT CLAIMING SMALL ENTITY STATUS
(37 CFR 1.9(f) & 1.27(c))--NONPROFIT ORGANIZATION**

Docket Number (Optional)
SHI01.NP001

Applicant, Patentee, or Identifier: SHI, William Tao

Application or Patent No.: Not known

Filed or Issued: March 19, 1999

Title: METHOD AND SYSTEM FOR PRESSURE ESTIMATION USING SUBHARMONIC SIGNALS FROM
MICROBUBBLE-BASED ULTRASOUND CONTRAST AGENTS

I hereby state that I am an official empowered to act on behalf of the nonprofit organization identified below:

NAME OF NONPROFIT ORGANIZATION Thomas Jefferson University

ADDRESS OF NONPROFIT ORGANIZATION 11th and Walnut Streets

Philadelphia, PA 19107

TYPE OF NONPROFIT ORGANIZATION:

☒ UNIVERSITY OR OTHER INSTITUTION OF HIGHER EDUCATION

☐ TAX EXEMPT UNDER INTERNAL REVENUE SERVICE CODE (26 U.S.C. 501(a) and 501(c)(3))

☐ NONPROFIT SCIENTIFIC OR EDUCATIONAL UNDER STATUTE OF STATE OF THE UNITED STATES OF AMERICA
(NAME OF STATE _____)
(CITATION OF STATUTE _____)

☐ WOULD QUALIFY AS TAX EXEMPT UNDER INTERNAL REVENUE SERVICE CODE (26 U.S.C. 501(a) and 501(c)(3))
IF LOCATED IN THE UNITED STATES OF AMERICA

☐ WOULD QUALIFY AS NONPROFIT SCIENTIFIC OR EDUCATIONAL UNDER STATUTE OF STATE OF THE UNITED
STATES OF AMERICA IF LOCATED IN THE UNITED STATES OF AMERICA
(NAME OF STATE _____)
(CITATION OF STATUTE _____)

I hereby state that the nonprofit organization identified above qualifies as a nonprofit organization as defined in 37 CFR 1.9(e) for purposes of paying reduced fees to the United States Patent and Trademark Office regarding the invention described in:

- ☒ the specification filed herewith with title as listed above.
☐ the application identified above.
☐ the patent identified above.

I hereby state that rights under contract or law have been conveyed to and remain with the nonprofit organization regarding the above identified invention. If the rights held by the nonprofit organization are not exclusive, each individual, concern, or organization having rights in the invention must file separate statements as to their status as small entities and that no rights to the invention are held by any person, other than the inventor, who would not qualify as an independent inventor under 37CFR 1.9(c) if that person made the invention, or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern, or organization having any rights in the invention is listed below:

- ☒ no such person, concern, or organization exists.
☐ each such person, concern, or organization is listed below.

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

NAME OF PERSON SIGNING Paul C. Brucker

TITLE IN ORGANIZATION OF PERSON SIGNING President

ADDRESS OF PERSON SIGNING Thomas Jefferson University, 1020 Walnut Street, Philadelphia, PA 19107

SIGNATURE Paul C. Brucker DATE 3/19/99

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ASSIGNMENT OF APPLICATIONDocket Number (Optional)
SHI01.NP001

Whereas, I, William Tao Shi 2-10 Linden Avenue, Apt. C401
of Haddonfield, NJ 08033, hereafter
 referred to as applicant, have invented certain new and useful improvements in _____
Method and System For Pressure Estimation Using Subharmonic Signals From Microbubble-Based Ultrasound
Contrast Agents

☒ for which an application for a United States Patent was filed on March 19, 1999,
 Application Number _____/_____.

☐ for which an application for a United States Patent was executed on _____, and

Whereas, Thomas Jefferson University of Philadelphia, Pennsylvania herein referred to
 "assignee" whose post office address is 1020 Walnut Street, Philadelphia, PA 19107 is de-
 siring of acquiring the entire right, title and interest in the same;

Now, therefore, in consideration of the sum of One dollars (\$ 1.00), the receipt whereof is ac-
 knowledged, and other good and valuable consideration, I, the applicant, by these presents do sell, assign
 and transfer unto said assignee the full and exclusive right to the said invention in the United States and the
 entire right, title and interest in and to any and all Patents which may be granted therefor in the United States,
 I hereby authorize and request the Commissioner of Patents and Trademarks to issue said United States
 Patent to said assignee, of the entire right, title, and interest in and to the same, for his sole use and behoof;
 and for the use and behoof of his legal representatives, to the full end of the term for which said Patent may
 be granted, as fully and entirely as the same would have been held by me had this assignment and sale not
 been made.

Executed this 19th day of March, 1999,
 at Philadelphia, Pennsylvania

William Tao Shi
 (Signature)

State of Pennsylvania SS:
 County of Philadelphia

Before me personally appeared said William Tao Shi
 and acknowledged the foregoing instrument to be his free act and deed this 19th
 day of March, 1999.

Seal

NOTARIAL SEAL
 CLAIRE T. REINKE, Notary Public
 City of Philadelphia, Phila. County

Claire T. Reinke
 (Notary Public)

Burden Hour Statement: This form is to be completed by the assignor. Time will vary depending upon the needs of the individual case. Any
 comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office,
 Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner of Patents and Trademarks,
 Washington, DC 20231.

NOTARIAL SEAL
 CLAIRE T. REINKE, Notary Public
 City of Philadelphia, Phila. County
 My Commission Expires August 5, 2001

ASSIGNMENT OF APPLICATION

Docket Number (Optional)
SHI01.NP001

Whereas, I, Joel S. Raichlen of 505 Hoffman Drive, Bryn Mawr, PA 19010, hereafter referred to as applicant, have invented certain new and useful improvements in Method and System For Pressure Estimation Using Subharmonic Signals From Microbubble-Based Ultrasound Contrast Agents

☒ for which an application for a United States Patent was filed on March 19, 1999,
Application Number / .

☐ for which an application for a United States Patent was executed on , and

Whereas, Thomas Jefferson University of Philadelphia, Pennsylvania herein referred to "assignee" whose post office address is 1020 Walnut Street, Philadelphia, PA 19107 is desirous of acquiring the entire right, title and interest in the same;

Now, therefore, in consideration of the sum of One dollars (\$ 1.00), the receipt whereof is acknowledged, and other good and valuable consideration, I, the applicant, by these presents do sell, assign and transfer unto said assignee the full and exclusive right to the said invention in the United States and the entire right, title and interest in and to any and all Patents which may be granted therefor in the United States, I hereby authorize and request the Commissioner of Patents and Trademarks to issue said United States Patent to said assignee, of the entire right, title, and interest in and to the same, for his sole use and behoof; and for the use and behoof of his legal representatives, to the full end of the term for which said Patent may be granted, as fully and entirely as the same would have been held by me had this assignment and sale not been made.

Executed this 19th day of March, 1999,
at Philadelphia, Pennsylvania.

Joel S. Raichlen
(Signature)

State of Pennsylvania SS:
County of Philadelphia

Before me personally appeared said Joel Raichlen 19th
and acknowledged the foregoing instrument to be his free act and deed this March day of March

NOTARIAL SEAL
CLAIRE T. REINKE, Notary Public
City of Philadelphia, Phila. County
My Commission Expires August 5, 2001

Claire T. Reinke
(Notary Public)

ASSIGNMENT OF APPLICATION

Docket Number (Optional)
SHI01.NP001

Whereas, I, Flemming Forsberg of 4139 Kottler Drive, Lafayette Hill, ^{PA 19444} hereafter referred to as applicant, have invented certain new and useful improvements in Method and System For Pressure Estimation Using Subharmonic Signals From Microbubble-Based Ultrasound Contrast Agents

☒ for which an application for a United States Patent was filed on March 19, 1999,
Application Number / .

☐ for which an application for a United States Patent was executed on , and

Whereas, Thomas Jefferson University of Philadelphia, Pennsylvania herein referred to "assignee" whose post office address is 1020 Walnut Street, Philadelphia, PA 19107 is desirous of acquiring the entire right, title and interest in the same;

Now, therefore, in consideration of the sum of One dollars (\$ 1.00), the receipt whereof is acknowledged, and other good and valuable consideration, I, the applicant, by these presents do sell, assign and transfer unto said assignee the full and exclusive right to the said invention in the United States and the entire right, title and interest in and to any and all Patents which may be granted therefor in the United States, I hereby authorize and request the Commissioner of Patents and Trademarks to issue said United States Patent to said assignee, of the entire right, title, and interest in and to the same, for his sole use and behoof; and for the use and behoof of his legal representatives, to the full end of the term for which said Patent may be granted, as fully and entirely as the same would have been held by me had this assignment and sale not been made.

Executed this 19th day of March, 19 99,
at Philadelphia, Pennsylvania

State of Pennsylvania SS:

County of Philadelphia

Before me personally appeared said Flemming Forsberg
and acknowledged the foregoing instrument to be his free act and deed this 19th day of March

(Signature)

NOTARIAL SEAL
CLAIRE T. REINKE, Notary Public
City of Philadelphia, Phila. County
My Commission Expires August 5, 2001

Seal

(Notary Public)

ASSIGNMENT OF APPLICATION

Docket Number (Optional)
SHI01.NP001

Whereas, I, Barry B. Goldberg of 620 Harts Ridge Road, Conshohocken, PA 19482, hereafter referred to as applicant, have invented certain new and useful improvements in Method and System For Pressure Estimation Using Subharmonic Signals From Microbubble-Based Ultrasound Contrast Agents

☒ for which an application for a United States Patent was filed on March 19, 1999,
Application Number / .

☐ for which an application for a United States Patent was executed on , and

Whereas, Thomas Jefferson University of Philadelphia, Pennsylvania herein referred to "assignee" whose post office address is 1020 Walnut Street, Philadelphia, PA 19107 is desirous of acquiring the entire right, title and interest in the same;

Now, therefore, in consideration of the sum of One dollars (\$ 1.00), the receipt whereof is acknowledged, and other good and valuable consideration, I, the applicant, by these presents do sell, assign and transfer unto said assignee the full and exclusive right to the said invention in the United States and the entire right, title and interest in and to any and all Patents which may be granted therefor in the United States, I hereby authorize and request the Commissioner of Patents and Trademarks to issue said United States Patent to said assignee, of the entire right, title, and interest in and to the same, for his sole use and behoof; and for the use and behoof of his legal representatives, to the full end of the term for which said Patent may be granted, as fully and entirely as the same would have been held by me had this assignment and sale not been made.

Executed this 19th day of March, 1999,
at Philadelphia, Pennsylvania.

Barry B. Goldberg
(Signature)

State of Pennsylvania SS:
County of Philadelphia
Before me personally appeared said Barry B. Goldberg
and acknowledged the foregoing instrument to be his free act and deed this 19th
day of March, 1999.

NOTARIAL SEAL
CLAIRE T. REINKE, Notary Public
City of Philadelphia, Phila. County
My Commission Expires August 5, 2001

Seal

Claire T. Reinke
(Notary Public)